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CARBON FIBRE GANGWAYS



User and maintenance Manual

Fixed and Folding versions

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1. INTRODUCTION

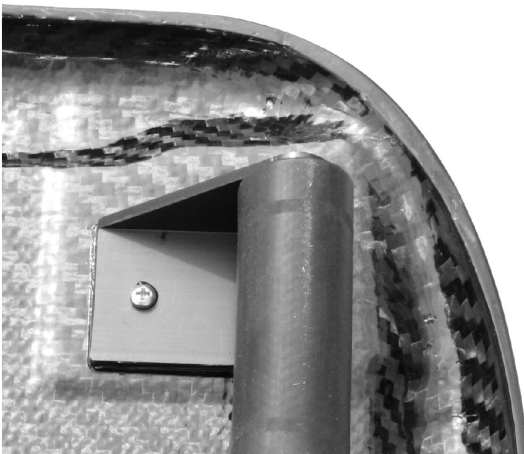
Exit Engineering has manufactured your gangway according to the highest quality standards, using epoxy resin pre-impregnated carbon fibre fabrics cured at high pressure and temperature in an autoclave. There could be small surface pores, which are typical of any carbon fibre that has been impregnated with optimal amounts of resin, which guarantee the best structural strength and minimum weight. Remember that any excess resin weakens the laminate.

Before using your gangway read the instructions given below very carefully, which give important safety information for installation, use and maintenance.

1.1 Product presentation

This gangway was accurately designed and engineered, with FEM structural simulations, after which it was tested for a maximum static load of 350 Kg. This load is sufficient to guarantee the transit of a single person, walking at normal pace. During initial use, with the gangway under load, you may hear some light creaks due to the settling of the carbon fibres. This is quite normal and soon disappears.

The self-tapping screws, visible on the lower supports (see figure at the side), are used only to keep the supports in position until the high resistance adhesive material we use is completely polymerised. All work loads are supported by the adhesive material and are transferred to the main laminate via the extended local reinforcements in carbon fibre (the projecting area in the figure at the side).



1.2 Contents of the box

Carbon fibre gangway

(The dimensions of your model are shown on the enclosed Certificate of Conformity).

Maximum load under static conditions : 350 kg

Carrying capacity: 1 person

Spares kit. According to model, it can include:

- 2 support wheels (present on all models),
- 1 neoprene mousse pad (see paragraph 2.7)
- 1 anti-folding securing screw, (see paragraph 2.3.1)
- 1 pin for securing the handrail stanchions

Options:

- Swinging deck fitting pivot (standard on 350 cm model)
- Handrail kit (folding models only)
- Deck fitting socket (either stainless steel or aluminium)
- Carbon fibre spreader bar for trapeze
- Teak non-slip tread
- Stowage bag

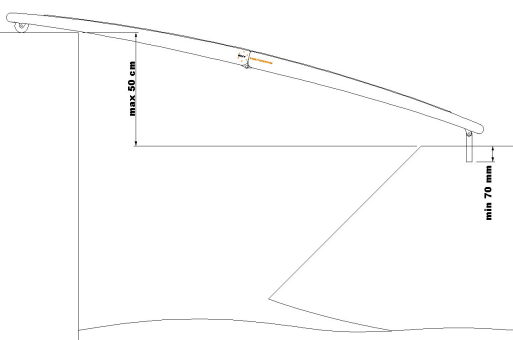
2. USE OF THE PRODUCT

2.1 Foreword

This carbon fibre gangway is designed and built with the sole purpose of enabling one person at a time to pass from the quay to the boat and vice-versa. The technology used, its design and construction are aimed at reaching this purpose while keeping the gangway as light as possible. Lightness should therefore be considered a distinguishing characteristic of the product, which allows and imposes some usage differences compared to common metallic gangways.

2.2 Positioning the gangway

The gangway may be used only in the presence of quays specifically made to enable mooring of pleasure craft. The following should therefore be excluded: cliffs, beaches, other boats and, in general, any quay not included in a tourist or commercial port, even if it is of a height compatible with the boat being used.



The maximum difference of height between boat and quay is 50 cm. Beyond this difference, the inclination of the gangway is dangerous, and can cause the user to slip and/or fall.

Use is allowed only if the gangway is firmly secured to the boat and laid with its wheels on the quay. **Make sure that the wheels are laid at sufficient distance from the quay edge to allow the normal wavy movement of the moored boat.**

2.3 Installation of the gangway before use

2.3.1 Instructions for all folding models

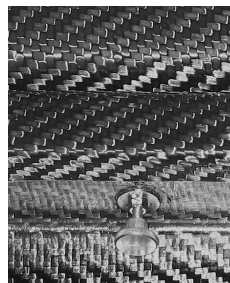
(if your model is fixed, move on directly to point 2.3.3)

Open the gangway with care, and, when opening, accompany the movement of the parts, in order to avoid unwanted stresses on the structure. There is a screw (2 on the larger models) under the gangway which, if fastened to the relevant nut, prevents any accidental folding of the gangway. The screw must be inserted from the side opposite the side where the nut is located.

IMPORTANT! Never screw from outside when the gangway is folded: a reckless opening could cause serious damages to the blocking system and to the carbon structure.

IMPORTANT! The blocking system is designed solely to keep the gangway open without any load on it. Never force folding when the screw is fastened.

Due to the play required for folding, there could be a slight lateral deviation between the two halves, which could make it difficult to use the securing (blocking) screw. In this case, a simple manual realignment of the two halves of the gangway will solve the problem. When the gangway is folded, the screw can be screwed onto the nut from the unfastened side, to avoid losing the screw, as shown in the figure at the side.



2.3.2 Gangway with standard fitting

(If your model has a swinging deck fitting pivot, go directly to point 2.3.3)

The standard version gangway (without the swinging deck fitting pivot, optional on some models) **must ALWAYS be secured to the boat** with at least 2 ropes between the brackets of the support bar (see figure at the side) and two strong points on board the boat. The ropes must be positioned in order to eliminate the possibility of both lateral and longitudinal movements of the gangway. In view of the variety of the possible on board arrangements, it is the user's responsibility



to identify these securing points and the number of ropes required to secure the gangway. **It is the boat captain's responsibility to make sure that the gangway is appropriately secured before allowing it to be used by other members of the crew.**

2.3.3 Gangway with swinging deck fitting pivot

If the gangway is provided with the swinging deck fitting pivot, it must be inserted in the deck fitting socket for a length of at least 70 mm (see figure on page 5). **It is the user's responsibility to make sure that the deck fitting socket, supplied by Exit Engineering or other suppliers, is firmly secured to the boat's structure.** The responsibility for a possible detachment of the deck fitting socket from the boat's structure and all the consequences which may ensue from this event, cannot be ascribed to Exit Engineering, as it is impossible for us to verify correct on board installation of this part.

If a gangway equipped with a swinging deck fitting pivot is used without fitting the pivot in an appropriate deck fitting socket, the use limitations and instructions become identical to those described in point 2.3.2 for the standard fitting.

2.4 Use of the uphaul

An uphaul can be used to keep the gangway slightly raised when not in use, thus reducing noise and wear of the wheels. To this end, **the uphaul must be made with an elastic material** - avoiding stiff ropes (Spectra ®, PBO ®, and the like) - and **its length must be adjusted to keep the gangway's wheels at a height of 5 to 10 cm** with respect to the quay. Always check that the weight of the lightest member of the crew is sufficient to firmly place the wheels on the quay.

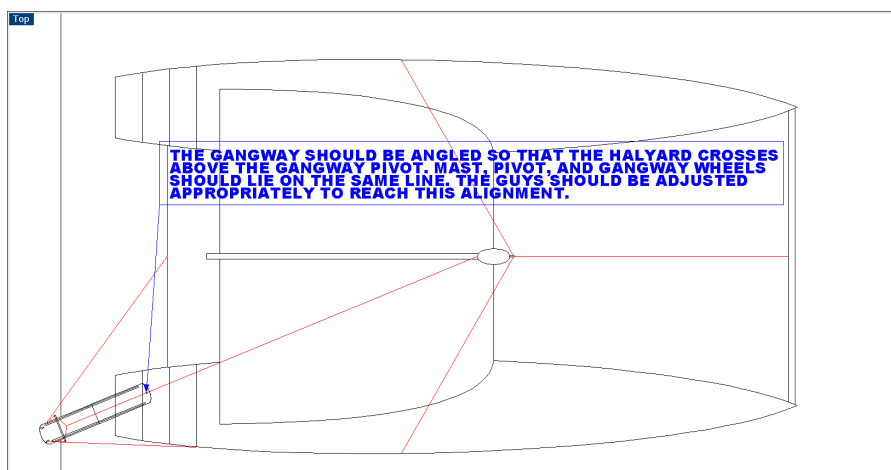
The uphaul must be equipped with a double attachment point, securing the two ends on the padeyes on the quay side of the gangway. To facilitate transit between the two ropes, we advise you to use the *trapeze* configuration, by utilising a spreader bar at a height of about 2 metres. Exit Engineering can supply you a carbon fibre spreader bar, which can also be purchased separately.

Suspended use of the gangway is dangerous as the gangway is unstable in this position, causing dangerous swings. In any event, it is not allowed due to the unforeseeable loads it can produce on structures and supports.

An uphaul is useful also for lifting the gangway as tides vary. In view of the light weight of this product, **you are always recommended to store the gangway when not in use**. This avoids the risk of tidal variations or other unforeseeable events causing impact and damage against the quay or any other port structures. If you want to leave the gangway deployed, the uphaul must keep the gangway lifted beyond the maximum foreseeable height difference between boat and quay, considering the presence of obstacles in the vicinity.

IMPORTANT! Never raise the gangway to an upright position while using the deck fitting pivot, since the recessed pivot or the deck fitting, depending on the models, will break the thin shell structure at the lower ends of the gangway.

If the uphaul is used, **it is the user's duty to make sure that the angle of upward traction is greater than 60° with respect to the horizontal plane** (see figure in chapter 4) and that the gangway is aligned with the mast or, in any event, with the uphaul securing point. This alignment is shown on the figure below, for use on board a catamaran. This can be considered an extreme case, but this configuration is valid for any type of multi-hull or single hull, whether sail or engine propelled.



GANGWAY ALIGNMENT WITH THE BOAT WHEN USING THE UPHAUL

2.5 Effects of wind and waves

In view of its low weight, this gangway may be less stable than other similar but heavier products, causing more sudden and dangerous movements during use.

Therefore, this gangway must not be used if the sea force is higher than 3 on the Beaufort scale.

In case of wind, the gangway could rise up, damaging itself or any other things, persons or animals present in the vicinity. If an increase in wind speed is expected, **detach the gangway from the boat and store it in a sheltered place.**

The "*lateral guys*" (horizontal ropes positioned between the dock ends of the gangway and boat) must be secured solely to the eye bolts on the upper wall of the gangway on the quay side (where the wheels are installed). **The "guys" must limit excessive lateral movements** which can gradually make the gangway rotate from its normal use position, perhaps making it fall on the quay or rest against the side of the boat.

They must, in any event, **allow slight lateral movements (5° in both directions)** and should therefore be left sufficiently "slack" to allow the gangway to correctly follow the boat's movements due to waves, without causing lateral slipping of the wheels.

2.6 Use of the gangway

The gangway was designed, built and tested for use by one person at a time who crosses it while walking normally. A person who jumps on the gangway or a heavy object thrown on it, produces a great and unforeseeable increase of exerted load, which could exceed the maximum load of 350 Kg specified by the project.

Transit on the gangway is therefore permitted to **one person at a time who walks normally**, i.e. with at least one foot in contact with the gangway without adding over normal weight to the step. **Running or jumping on it is therefore not permitted**, and **likewise, walking on it while carrying loads of over 20 Kg or objects with dimensions greater than 80x40x30 cm.** Baggage of greater dimensions and weight can cause sudden, uncontrolled movements the effects of which could be dangerous to the user and product.

When using the gangway, take care not to stumble on the structure (the gangway is lifted up by about 8 cm from the surface of the quay or boat), on the eye bolts and ropes used as uphaul or *guys*, and on the handrail if any, or on the stanchions. Any false step, in addition to endangering the person involved, leading to a possible fall, could cause dynamic loads in excess of those for which the gangway was designed, leading to a failure of the gangway.

The optional handrail set (available only on some models) is meant to be a guide for maintaining better balance. In view of the lightness of the gangway, we do not recommend you to grip the rope or handrail stanchion, because a lateral load in a high position could imbalance the gangway, causing uncontrolled, and dangerous movements for the user.

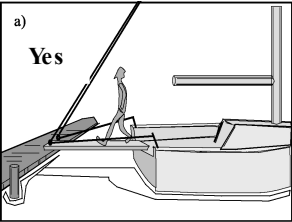
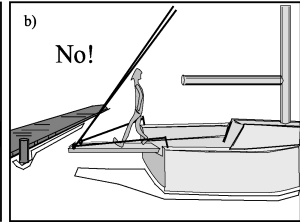
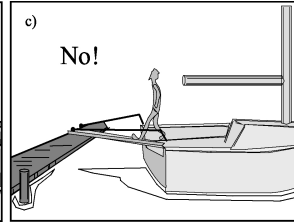
The gangway has a non-slip surface which reduces the possibility of slipping while crossing. This surface normally consists of a special rough paint, but a teak cover is available as an optional item. The non-slip surface entirely covers the parts of the gangway used for walking, which are therefore easy to identify.

It is dangerous to rest your feet and other parts of the body outside the walking surfaces due to the risk of slipping caused by the smooth carbon surface, whether wet or dry, and due to the risk of applying, to the gangways, loads not specified by the design project.



In particular, in view of the gangway's light weight, **loads must not be applied on the curved frontal zones**, ("NO" zones in the figure at the side) beyond the line joining the axes of the wheels and the brackets of the deck fitting. This is meant to prevent the entire gangway from lifting, by obtaining leverage on the nearest support point.

By exploiting the latter fact in order to reduce the weight of your gangway to the utmost, **the curved frontal zones were intentionally designed with a lighter structure**, which is not suitable for supporting loads.

		
<p>Before stepping on the gangway, <u>make sure that its two ends are correctly laid on the boat and quay.</u> The angle between the trapeze and the gangway must not be less than 60°.</p>	<p>The eye bolts supplied for hooking onto any trapeze or lateral guys, cannot be used to sustain any other weight, except that of the gangway itself in normal weather conditions. <u>DO NOT walk on the gangway when it is not laid down at both ends on a solid base.</u></p>	<p><u>The guys MUST NOT be used to bear the weight of the gangway,</u> but only to ensure its horizontal stability.</p>

2.7 Maintenance

The pad in neoprene mousse applied to the central wall of the folding models, uniformly distributes the high pressure developed between the walls during use. In the event of excessive wear, this component should be replaced by the spare part supplied with the gangway. If necessary, this material can easily be found in rolls at leading hardware shops - ask for size 20 mm wide x 3 mm thick. Before gluing on the new pad, eliminate all traces of old glue, and degrease the surface with acetone of similar product.

Carbon fibre epoxy structures are not prone to osmosis nor other kinds of chemical degradation so they do not require any special maintenance. Nevertheless, **we advise against the use of detergents, since under the effect of sunlight they can become aggressive against paints.** Our advice is to wash the product with water. Any yellowing of the AISI 316 stainless steel parts can be eliminated simply by polishing.

The materials and technology used to construct this gangway ensure a very long life of the product, thanks to the structural properties of the resin and the ultra high resistance against natural atmospheric agents of the paints selected by Exit Engineering. However, due to these very technical characteristics, it may be difficult to find operators able to successfully carry out any jobs entailing repair or restoration to original conditions following normal wear or accidents.

For this reason **Exit Engineering provides a complete overhaul service of all its products.** You can consult Exit Engineering's web site or directly contact us at our head office, to obtain all details of this service.

3. USE PRECAUTIONS

3.1 During positioning

Most Exit Engineering gangways are light enough to permit a normal person to position it between boat and quay, while remaining on board the boat. Only the 350 cm model is better deployed with help from another person, due to its length. This operation must be performed with great care, since it can lead a person to lean out of the boat, with a high risk of very dangerous falls.

3.2 During re-folding

(if you have bought a fixed model, move on to the next paragraph)

Always remember to unscrew the screw on the central wall of the gangway, before attempting to refold it. See paragraph 2.3.1.

While refolding the gangway, do not put your fingers or other parts of the body in the zone between the two semi-gangways. Although this is a lightweight product, the pressure levels which can be reached because of the leverage effect between the two folded halves are highly dangerous. The person assigned to refold the gangway must make sure that no other persons and, in particular, children or animals, are close to it before proceeding.

The presence of stiff and strong objects, even if thin, in the zone between the two semi-gangways being refolded, can damage the hinges or other parts of the structure. Always pay attention to possible obstacles to the folding of the gangway and immediately stop folding operations at the slightest feeling of effort. Correct folding feels easy to perform.

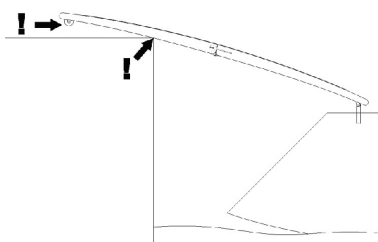
3.3 Effects of the tide

Always check that low tide has not lifted up the wheels of the gangway, making the lower part of the gangway rest against the edge of the quay.

Use under these conditions easily causes the gangway to lift up with serious danger of a fall.

Furthermore, the application of the user's weight when the gangway is resting in a different zone than the one where it is supported by the wheels and by the support on the deck, can break the gangway.

Any grazing by the lower part of the gangway against the quay edge can ruin the surface finish and, in some cases, cause structural damage.

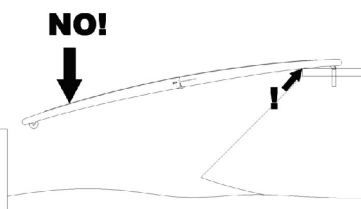


4. FORBIDDEN USES

The gangway must not be used if one of the two ends is not firmly laid down.

In particular, if the optional swinging deck fitting pivot is fitted in its socket on the deck, and the lower part of the gangway is in contact with the boat's washboard, the gangway may appear to be jammed. In this case do not apply any load on the gangway and, do not, on any account, try to walk on it.

Any load can easily cause the pivot to withdraw, thus making the gangway fall. In some situations, the opposite effect could occur, favouring joining and producing a load situation not conforming to the design project, causing catastrophic structural yielding of the gangway.



The gangway must not be used either for transit between two boats or to keep two boats united. This prohibition applies to boats moored in a port, anchored or laying to.

The gangway must not be used either as a diving springboard or as a platform to lean out of the boat (e.g. for fishing, or as an observation point of the lower part of the hull).

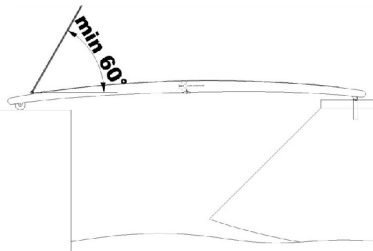
Do not use the gangway as a loading platform for the boat.

The gangway must not be used by more than one person at a time.

Do not jump or dance or, in any event, make sudden movements differing from those of normal walking.

Do not use the gangway when suspended from an uphaul, unless the wheels are firmly laid on a quay while the user is crossing.

Do not use an uphaul which, with a horizontal surface, forms an angle of less than 60° (see figure at the side).



Do not support the gangway, even if load free, with the "guys". The guys must always be slack, allowing a movement of 5° in both directions to the gangway.

Do not raise the gangway to an upright position while the deck fitting pivot is inserted in its socket. This will cause the cracking of the carbon fibre structure due to the recessed pivot leverage. Maximum vertical angle is around 70°.

The failure to respect the user instructions, in particular any use not expressly permitted or forbidden, shall void the manufacturer's guarantee and any responsibility ascribable to said Manufacturer for damage deriving from improper use of the product.

5. DISPOSAL

This product should be considered as *non dangerous waste*, under the provisions of directive 91/687/EEC.

The materials with which it is made are not suitable for the habitual recycling for plastic materials usually performed by local authorities, but require special procedures in certain cases adopted for composite structures, e.g. boat hulls in fibreglass reinforced plastic.

These procedures are not available everywhere and, therefore, the product should generally be considered as *dry non-recyclable waste* in the event of disposal.

The user is responsible for conferring the product at the end of its life to an appropriate collection structure, and the failure to do so shall make the said user subject to the penalties specified in current legal regulations on waste.

Adequate differentiated collection, followed by sending the disposed of product for treatment and for environmentally compatible disposal, contributes to avoiding the possible negative effects on the environment and health.

6. IDENTIFICATION OF YOUR GANGWAY

Your gangway is uniquely identified by a **Serial Number (S/N) of eleven figures**, visible, together with the **Structure Product Number (SP/N)** in the lower zone of the gangway. The codes are indicated on a white or yellow plate, located inside the lateral walls. The version of the model corresponds to the **Product Number (P/N)**, mentioned on your purchase invoice. All codes are shown on the Certificate of Conformity issued by Exit Engineering together with the gangway.

Exit Engineering reserves the right to make, at its discretion, any appropriate modification dictated by regulatory, industrial, commercial or aesthetic reasons.

We are constantly committed to improve our products and, to that end, any comment or suggestion by you will be appreciated and seriously evaluated.

GUARANTEE

This product is guaranteed for a period of 24 months from date of purchase, which must be proved by a document valid for tax effects.

We also advise you to indicate the Serial Number (S/N) and the Product Number of the Structure (SP/N), visible inside the gangway and on the Certificate of Conformity.

Guarantee means the free of charge repair or replacement of the product or parts of it which are faulty at the point of origin, due to manufacturing defects.

In the case of an irreparable fault, Exit Engineering, shall, at its complete discretion, replace the product, the guarantee of which shall continue until the end of the original contract. All replaced parts shall become the property of Exit Engineering.

This guarantee is not applicable in case of negligent or careless use (failure to observe the instructions indicated in this document), incorrect installation or maintenance, maintenance jobs carried out by unauthorised personnel, transport damage, or circumstances which, however, cannot be considered linked to faults in manufacturing the product.

The guarantee is also excluded in all cases of improper use of the product.

Exit Engineering declines all responsibility for any damages which can, directly or indirectly affect persons, things and pets, as a consequence of the non observance of all the prescriptions indicated in this document.

**THE GANGWAY DESCRIBED IN THIS MANUAL WAS TOTALLY
PRODUCED IN ITALY.**

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